

We claim:

1. A composition for preparing a water-repellant coating on an optical substrate, comprising a porous, electrically conductive molding and an organosilicon compound, wherein said composition is obtained by

- a) mixing an electrically conductive or semiconductive support material with a binder and subjecting the resulting mixture to compression to form a compression molding,
- b) sintering said compression molding at 1100 to 1500°C in air to form a porous molding,
- c) impregnating said porous molding with said organosilicon compound, and
- d) ageing said impregnated molding.

2. A composition for preparing a water-repellant coating on an optical substrate, wherein said composition comprises:

a porous, electrically conductive molding and an organosilicon compound, wherein said composition is obtained by ageing a sintered compression molding which is impregnated with an organosilicon compound, and wherein said electrically conductive molding comprises carbon; a conductive metal oxide, carbide, nitride or silicide; a metal powder and a non-conductive material; or a mixture thereof.

3. The composition of claim 2, wherein said ageing is performed for a time sufficient to cleave said organosilicon compound.

4. A composition for preparing a water-repellant coating on an optical substrate, comprising an organosilicon compound and a porous, electrically conductive molding, wherein said electrically conductive molding comprises

- a) an electrically conductive metal oxide, carbide, nitride or silicide,
- b) carbon,
- c) a metal powder and a non-conductive material, or
- d) a mixture thereof.

5. The composition according to claim 2, wherein said organosilicon compound is of formula I



wherein

R¹ is an alkoxy of 1 to 3 a carbon atoms or C_nF_{2n+1}-(CH₂)_m-Si(R²R³)-O-,

R² and R³ are each independently alkyl or alkoxy of 1 to 3 carbon atoms,

n is 1 to 12 and

m is 1 to 6.

6. The composition according to claim 2, wherein said conductive metal oxide is indium oxide or tin dioxide which is optionally doped with antimony, fluorine, phosphorus, niobium or tantalum.

7. The composition according to claim 2, wherein said metal carbide is titanium carbide, chromium carbide or tungsten carbide.

8. The composition according to claim 2, wherein said metal nitride is chromium nitride or tungsten nitride.

9. The composition according to claim 2, wherein said metal silicide is molybdenum silicide, titanium silicide, or chromium silicide.

10. The composition according to claim 2, wherein said metal powder is titanium, zirconium, silicon, chromium, nickel or iron.

11. The composition according to claim 2, wherein said non-conductive material is silicon oxide, aluminum oxide, zirconium oxide, aluminum silicate or a mixture thereof.

12. The composition according to claim 2, wherein said organosilicon is triethoxy (3,3,4,4,5,5,6,6,7,7,7-undecafluoroheptyl)silane.

13. The composition according to claim 2, wherein said organosilicon is triethoxy (3,3,4,4,5,5,6,6,7,7,8,8,8-tridecafluorooctyl)silane.

14. The composition according to claim 2, wherein said organosilicon is triethoxy (3,3,4,4,5,5,6,6,7,7,8,8,9,9,10,10,10-heptadecafluorodecyl)silane.

15. The composition according to claim 2, wherein said organosilicon is diethoxymethyl (3,3,4,4,5,5,6,6,7,7,8,8,9,9,10,10,10-heptadecafluorodecyl)silane.

- 04029504 052804 022424 062686 0
16. The composition according to claim 2, wherein said organosilicon is bis[ethoxymethyl(3,3,4,4,5,5,6,6,7,7,8,8,8-tridecafluoroctyl) silyl ether.
17. The composition according to claim 2, wherein said electrically conductive molding comprises 50 to 90% by weight of an electrically non-conductive material and 10 to 50% by weight of a metal powder.
18. The composition according to claim 2, wherein said electrically conductive molding comprises 40 to 60% by weight of aluminum silicate and 20 to 60% by weight of silicon powder.
19. A method of making a composition for preparing a water-repellant coating on an optical substrate, comprising
- a) mixing an electrically conductive or semiconductive support material with a binder and subjecting the resulting mixture to compression to form a compression molding,
 - b) sintering said compression molding at 1100 to 1500°C in air to form a porous molding,
 - c) impregnating said molding with said organosilicon compound, and
 - d) ageing the impregnated molding.
20. A method of making a composition for preparing a water-repellant coating on an optical substrate, comprising ageing a sintered compression molding of carbon, or a conductive metal oxide, carbide, nitride or silicide, or a metal powder and a non-conductive

material, or a mixture thereof, which is impregnated with an organosilicon compound.

21. The method according to claim 19, wherein said binder is polyvinyl alcohol, glycerol, methylcellulose, dextrin or a wax, and the concentration of said binder in said compression molding is 1-20% by weight.

22. The method according to claim 20, wherein said compression molding is in the form of a tablet which has a diameter of 10-15 mm and a height of 5-10 mm, or in the form of a granule which has a particle size of 1-4 mm, and/or wherein said porous molding has a porosity of 40-60%.

23. The method according to claim 19, further comprising heating said compression molding in air at 400-600°C before sintering it at 1100-1500°C.

24. A method for coating an optical substrate with a water-repellant coating, comprising subjecting a composition of claim 2 to a vacuum of 10^{-5} - 10^3 mbar and a temperature of 300-500°C, thereby vaporizing said organosilicon compound from such composition, and depositing said vaporized organosilicon compound on said substrate by vapor deposition.

25. The composition according to claim 4, wherein said organosilicon compound is of formula I



wherein

R¹ is an alkoxy of 1 to 3 a carbon atoms or C_nF_{2n+1}-(CH₂)_m-Si(R²R³)-O-,

R² and R³ are each independently alkyl or alkoxy of 1 to 3 carbon atoms,

n is 1 to 12 and

m is 1 to 6.

26. The composition according to claim 4, wherein said metal powder is titanium, zirconium, silicon, chromium, nickel or iron.

27. The composition according to claim 4, wherein said non-conductive material is silicon oxide, aluminum oxide, zirconium oxide, aluminum silicate or a mixture thereof.

28. The composition according to claim 5, wherein said electrically conductive molding comprises 50 to 90% by weight of an electrically non-conductive material and 10 to 50% by weight of a metal powder.

29. The composition according to claim 4, wherein said electrically conductive molding comprises 40 to 60% by weight of aluminum silicate and 20 to 60% by weight of silicon powder.

30. The composition according to claim 1, wherein said electrically conductive molding comprises an electrically conductive material with the exception of a metal, or a mixture of an electrically conductive material and an electrically non-conductive material.